

REMARKS

Claims 1-5, 7-9, and 12-23 are pending in this application. By this Response, claims 1, 13, 15, and 21 are amended. Independent claims 1, 15, and 21 are amended to recite providing a model of a real-world condition by configuring a memory to represent a multi-dimensional electronic spreadsheet model of the real-world condition, receiving an input to the user interface, via a peripheral device coupled to the computing system, the input specifying a status setting of the selected user option, and reconfiguring the memory of the computer system to represent a modified model of the real-world condition based on the input received via the user interface. Support for these amendments may be found at least at page 1, lines 21-29; page 12, lines 21-27; page 13, line 24 to page 14, line 6; and page 18, lines 9-31 of the present specification. As described in these sections of the specification, an example of a real-world condition that may be modeled with a multi-dimensional spreadsheet model is a financial condition that is modeled using a financial model. User input to a user interface may be received to select the setting of various user options which in turn modify the model by changing the setting of these user options within the multi-dimensional spreadsheet model. Reconsideration of the claims is respectfully requested in view of the following remarks.

I. Telephone Interview

Applicants were unable to schedule a telephone interview with the Examiner prior to the three month response due date. In view of the number of Office Actions issued during the prosecution of this application, Applicants respectfully request that the Examiner contact Applicants' undersigned representative to conduct a telephone interview between the Examiner, the Examiner's Supervisor, and Applicants' representative in or to expedite a final disposition of the application.

II. Request to Make Application “Special” under MPEP § 707.02

In accordance with MPEP § 707.02, Applicants respectfully request that the Examiner’s Supervisor personally check on the pendency of the present application with a view to finally concluding its prosecution since this application is now at a fourth Office Action, and a second Office Action following an appeal. Moreover, since the present application has been pending for more than five years, Applicants respectfully request that the application be made “special” and that the Examiner’s Supervisor carefully study the present application and its prosecution history in order to make every effort to terminate prosecution of the application.

III. Rejection under 35 U.S.C. § 101

The Office Action rejects claims 1-5, 7-9, and 12-23 under 35 U.S.C. § 101 as being allegedly directed to non-statutory subject matter. Specifically, the Office Action alleges that the claims do not produce a useful, concrete, and tangible result. This rejection is respectfully traversed.

Independent claim 1 reads as follows:

1. A method, in a computer system, for processing user defined Boolean variables in a multi-dimensional electronic spreadsheet comprising a plurality of cells identified by a cell address along each dimension, said method comprising the steps of:

providing a model of a real-world condition by configuring a memory of the computer system to represent a multi-dimensional electronic spreadsheet model of the real-world condition;

providing, in the computer system, a user options table data structure identifying one or more user options that are defined as Boolean variables, wherein the user options table data structure comprises a record for each user option of the one or more user options, and wherein each record stores an identifier associated with a corresponding user option for the record;

providing a user interface, in the computer system, through which the one or more user options are defined, wherein a status of the one or more user options is set via the user interface to either a first Boolean variable state corresponding to a “True” state or a second Boolean variable state corresponding to a “False” state;

referencing a selected user option of the one or more user options in one or a plurality of cells of the multi-dimensional electronic spreadsheet by including an identifier associated with the selected user option in content of the one or a plurality of cells;

receiving an input to the user interface, via a peripheral device coupled to the computing system, the input specifying a status setting of the selected user option;

reconfiguring the memory of the computer system to represent a modified model of the real-world condition based on the input received via the user interface;

determining a value of each of the one or plurality of cells based on the status of the selected user option as either being the first Boolean variable state or the second Boolean variable state, as specified by the input to the user interface; and

providing an output of the modified model via an output device of the computer system based on the determined value of each of the one or plurality of cells, wherein the output of the modified model provides information to a user regarding a scenario of the real-world condition in which the selected user option has a status setting corresponding to the received input. (emphasis added)

As cast, 35 U.S.C. 101 defines four categories of inventions that Congress deemed to be the appropriate subject matter of a patent; namely, processes, machines, manufactures and compositions of matter. The latter three categories define "things" while the first category defines "actions" (i.e., inventions that consist of a series of steps or acts to be performed). See 35 U.S.C. 100(b) ("The term 'process' means process, art, or method, and includes a new use of a known process, machine, manufacture, composition of matter, or material.") (see MPEP § 2106(IV)(A)). Thus, methods are patentable subject matter.

The subject matter courts have found to be outside the four statutory categories of invention is limited to abstract ideas, laws of nature and natural phenomena. These three exclusions recognize that subject matter that is not a practical application or use of an idea, a law of nature or a natural phenomenon is not patentable. The presently recited invention in claim 1 recites a practical application or use of a method in a computer system to thereby modify the computer system, and configure/reconfigure the memory of the computer system, to generate an output via an output device of the computer system, namely an output of the a modified model of a real-world condition, which is represented by a modified multi-dimensional electronic spreadsheet that is generated based on values

of cells in the multi-dimensional electronic spreadsheet, which in turn are based on the settings of user options defined via a user interface. Thus, the presently claimed invention is not simply a computer algorithm or data construct directed to an abstract idea, law of nature, or natural phenomena, but instead provides a useful, concrete and tangible result. To the contrary, the method set forth in claim 1 provides a useful, concrete, and tangible output identifying information regarding a scenario of a real-world condition modeled by the multi-dimensional electronic spreadsheet and the particular status setting of user options; information that the user may not otherwise be able to obtain due to the complexity of the real-world condition being modeled.

Thus, as shown above, claim 1 recites many different features directed to useful, concrete, and tangible results obtained through use of the method of claim 1. First, claim 1 recites that the method is performed in a computer system and thus, is limited to implementation within a physical computer. Second, claim 1 models a real-world condition by configuring a memory of the computer system. Thus, the method changes the configuration of a physical computer system memory and therefore, provides a useful, concrete, and tangible result. Third, the method receives input, via a peripheral device coupled to the computing system, the input being used to modify the model of the real-world condition. Fourth, the modification of the model of the real-world condition is performed by reconfiguring the memory of the computer system to provide a modified model of the real-world condition, thereby further reciting a useful, concrete, and tangible result. Fifth, the method results in the output of the modified model via an output device of the computer system, the output providing information to a user regarding a scenario of the real-world condition in which the selected user option has a status setting corresponding to the received input.

Therefore, the method clearly recites interaction with elements outside of the computer system itself, e.g., peripheral devices providing input signals that are used to modify a model of a real-world condition and outputting a modified model of the real-world condition via an output device. Moreover, the method clearly recites that the configuration of the computer system's memory is modified in response to the input via the peripheral device so as to provide a modified model of a real-world condition.

Furthermore, the method of claim 1 provides information about a scenario of a real-world condition in which user options have the state settings corresponding to the input from the user. Thus, again the method of claim 1 provides a useful, concrete, and tangible result in that the user is provided with information that he/she may not otherwise have regarding possible scenarios of real-world conditions. As discussed above, in one illustrative embodiment, the real-world condition may be a financial condition and the model may be a financial model that is modified by the user's selection of a state setting of user options in the financial model. Thus, via the use of the method set forth in claim 1, in such an illustrative embodiment a user may be provided with information regarding a particular scenario of the financial model, e.g., if various types of discounts are enabled or not, that the user may not otherwise be able to obtain.

Independent claim 15 recites:

15. A computing system for processing user defined Boolean variables in a multi-dimensional electronic spreadsheet comprising a plurality of cells identified by a cell address along each dimension, the computing system comprising:

a processor;

a storage device coupled to the processor, wherein the storage device provides a user options table data structure identifying one or more user options that are defined as Boolean variables, wherein the user options table data structure comprises a record for each user option of the one or more user options, and wherein each record stores an identifier associated with a corresponding user option for the record; and

a memory coupled to the processor, wherein the memory contains instructions which, when executed by the processor, cause the processor to:

provide a model of a real-world condition by configuring the memory of the computer system to represent a multi-dimensional electronic spreadsheet model of the real-world condition;

provide a user interface through which the one or more user options are defined, wherein a status of the one or more user options is set via the user interface to either a first Boolean variable state corresponding to a "True" state or a second Boolean variable state corresponding to a "False" state;

reference a selected user option of the one or more user options in one or a plurality of cells of the multi-dimensional electronic spreadsheet by including an identifier associated with the selected user option in content of the one or a plurality of cells;

receive an input to the user interface, via a peripheral device coupled to the computing system, the input specifying a status setting of the selected user option;

reconfigure the memory of the computer system to represent a modified model of the real-world condition based on the input received via the user interface;

determine a value of each of the one or plurality of cells based on the status of the selected user option as either being the first Boolean variable state or the second Boolean variable state, as specified by the input to the user interface; and

provide an output of the modified model via an output device of the computer system based on the determined value of each of the one or plurality of cells, wherein the output of the modified model provides information to a user regarding a scenario of the real-world condition in which the selected user option has a status setting corresponding to the received input.

Thus, claim 15 recites a system having a processor, a storage device, and a memory. The storage device is specifically configured to provide a user options table data structure identifying one or more user options that are defined as Boolean variables. The memory is specifically configured to provide instructions which, when executed by the processor cause the processor to perform the various operations set forth in the claim. The operations correspond to similar operations recited in method claim 1 and thus, themselves provide useful, concrete, and tangible results for the reasons set forth above.

Moreover, claim 15 recites a specific useful machine. As stated in the USPTO's Guidelines for Examining Computer Related Inventions, pages 11-13:

If a claim defines a useful machine or manufacture by identifying the physical structure of the machine or manufacture in terms of its hardware or hardware and software combination, it defines a statutory product. A machine or manufacture claim may be one of two types: (1) a claim that encompasses any and every machine for performing the underlying process or any and every manufacture that can cause a computer to perform the underlying process, or (2) a claim that defines a specific machine or manufacture. When a claim is of the first type, Office personnel are to evaluate the underlying process the computer will perform in order to determine the patentability of the product...

...If a product claim does not encompass any and every computer-implementation of a process, then it must be treated as a specific machine or manufacture. Claims that define a computer-related invention as a

specific machine or specific article of manufacture must define the physical structure of the machine or manufacture in terms of its hardware or hardware and "specific software." The applicant may define the physical structure of a programmed computer or its hardware or software components in any manner that can be clearly understood by a person skilled in the relevant art. Generally a claim drawn to a particular programmed computer should identify the elements of the computer and indicate how those elements are configured in either hardware or a combination of hardware and specific software. To adequately define a specific computer memory, the claim must identify a general or specific memory and the specific software which provides the functionality stored in the memory. A claim limited to a specific machine or manufacture, which has a practical application in the technological arts, is statutory. In most cases, a claim to a specific machine or manufacture will have a practical application in the technological arts.

As discussed above, the operations performed by the method, which are also performed by the system recited in claim 15, provide a useful, concrete, and tangible result. Moreover, as stated above in the Guidelines for Examining Computer Related Inventions, a specific machine or manufacture, such as the one recited in claim 15, is statutory.

Similar considerations apply to independent claim 21 which recites a computer program product in a computer readable medium, the computer readable medium having a computer readable program, wherein the computer readable program, when executed on a computing device, causes the computing device to perform operations similar to that of the method claim 1. Thus, claim 21 recites a specific kind of useful manufacture that provides a useful, concrete, and tangible result and thus, is directed to statutory subject matter for similar reasons as discussed above with regard to claims 1 and 15.

Thus, for the reasons set forth above, Applicants respectfully submit that claims 1-5, 7-9, and 12-23 are directed to statutory subject matter. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1-5, 7-9, and 12-23 under 35 U.S.C. § 101.

IV. Rejection under 35 U.S.C. § 112, Second Paragraph

The Office Action rejects claims 1-5, 7-9, and 12-23 as being allegedly indefinite. Specifically, the Office Action alleges that there is a missing step in the independent claims and that an “assigning” step needs to be recited in the claim.

By this Response, the independent claims are amended to recite that the output is of the modified model and is based on the determined value of each of the one or plurality of cells. The value of each of the one or plurality of cells is dependent upon the setting of the user option. Thus, the state of the user option, which is referenced in the one or plurality of cells, causes a value of the one or plurality of cells to be different based on the setting of the state. It can be appreciated that if multiple user options are referenced in a cell, the combination of state settings of each of the user options will influence the value of the cell.

Applicants respectfully submit that there is no ambiguity with regard to the steps of determining the value of each of the one or plurality of cells or the generation of an output that is based on the determined value of each of the one or plurality of cells. Moreover, the claim recites that the value is “of” each of the one or plurality of cells and thus, it is stated in the claim that the cell has a value that is determined, at least in part, upon the setting of the user option. There is no need for an “assigning” step since the claim already states that the one or plurality of cells has a determined value. Thus, Applicants respectfully submit that one of ordinary skill in the art is well aware of the scope of the claims based on the language used in the claims and no “assigning” step is necessary.

Similar arguments apply to independent claims 15 and 21 which are rejected under similar reasoning. Accordingly, Applicants respectfully request withdrawal of the rejection of claims 1-5, 7-9, and 12-23 under 35 U.S.C. § 112, second paragraph.

V. Rejections under 35 U.S.C. § 103(a)

The Office Action repeats the same rejections under 35 U.S.C. § 103(a) as were set forth in the previous Office Action. Thus, Applicants respectfully submit that the

arguments presented in Applicants' Response to the previous Office Action, filed October 5, 2006, are believed to still be applicable to the current rejections under 35 U.S.C. § 103(a). Therefore, Applicants direct the Examiner's attention to the arguments set forth in the Response filed October 5, 2006. The following remarks are provided in response to the Examiner's argument presented in the Office Action mailed December 22, 2006 directed to why the Examiner is not persuaded by Applicants' arguments.

In the December 22, 2006 Office Action, the Examiner basically states that all of Applicants' arguments are not considered persuasive because the Examiner alleges that Applicants are arguing the references individually rather than addressing the combination of references. Applicants respectfully disagree and submit that Applicants have addressed the references individually and in combination.

The only way to discuss each reference and its teachings/suggestions is to refer to the reference individually. Moreover, the only way to address the Examiner's allegations with regard to each reference is to address those allegations individually. Applicants' arguments are structured such that each reference is addressed for what it teaches/suggests, what it does not teach or suggest, what the Examiner alleges it teaches/suggests in the Office Action, and why the teachings/suggestions alleged by the Examiner do not in fact teach or suggest the features of the claim. This is similar to the format the Examiner takes in the Office Action, and as is explicitly stated by the MPEP as the proper way to set forth a § 103(a) rejection, i.e. to state what the references teach, what they do not teach, the modification of the teachings of the references, and the motivation for the modification. A proper response to a § 103(a) rejection should address these components in a similar manner, as Applicants have done in their arguments.

Having shown the particular deficiencies of each of the references individually, Applicants' arguments then address the combination of references as being deficient since, if the references are deficient individually, simply combining them does not solve the deficiency. That is, logically, if none of the references teach or suggest a particular feature of the claim, then simply combining the references is not going to magically generate the feature that is not present in any of the references. Thus, Applicants address the references individually and in combination and thus, have made a proper argument

against the alleged combination of references and have not simply argued the references individually contrary to the Examiner's allegations.

Take for example, Applicants argument with regard to the § 103(a) rejection of claim 1. In the Response filed October 5, 2006, Applicants address the primary reference, Kaneko, as follows:

Kaneko is directed to a spreadsheet calculation method and apparatus for extracting an area to be updated by a calculation formula. Specifically, Kaneko teaches the use of a spreadsheet (Figure 2A) that has cells which may have formulas associated with the cells. The formulas are represented in a separate formula table (Figure 2B). When a change is made to a value in one of the cells of the spreadsheet, e.g., cell B4, this change will affect other cells in the spreadsheet that have formulas that reference the value in cell B4, as shown in Figures 3A and 3B. With the mechanism of Kaneko, the portions of the spreadsheet and formula table affected by the change to the value in cell B4 are highlighted (shown in Figures 3A and 3B by shaded areas). As shown in Figures 3A and 3B, the cells D4 and D7 are affected by the change to the value in cell B4 as well as the formulas "D4=B4*C4" and "D7=TOTAL(D4~D6)" in the formula table. D7 is affected by the change because the formula for D7 references cell D4 which is affected by the change to the value in cell B4.

Nowhere in Kaneko is there any teaching or suggestion regarding a table of user options that are defined as Boolean variables. The Office Action fails to specifically state what the Examiner considers to be the same as this feature and instead just merely refers to alleged teachings in the reference without equating them to any feature in the claims. Thus, it is left to Applicants to guess at what the Examiner is assuming is the same as the user options table recited in claim 1. Since the spreadsheet is clearly shown in Figures 2A and 3A of Kaneko, it can only be assumed that the Examiner is equating the formula table of Figures 2B and 3B with the user options table of claim 1. However, the formula table of Figure 3B does not specify user options and does not specify user options that are defined as Boolean variables.

To the contrary, the formula table merely provides a depiction of the formulas that are presently being used in the spreadsheet. There is no ability in Kaneko to define a user option in the formula table of Kaneko, let alone set a status of user options in the formula table of Kaneko to either a first Boolean variable state corresponding to a "True" state or a second Boolean variable state corresponding to a "False" state, as recited in claim 1.

There are two separate interfaces recited in claim 1: the electronic spreadsheet, and the interface for defining user options, which may be referenced in one or more cells of the electronic spreadsheet. Kaneko

clearly teaches a spreadsheet. However, nowhere in Kaneko is there any teaching or suggestion regarding an interface through which user options may be defined and through which the state of user options may be set to either a first Boolean variable state or a second Boolean variable state, as recited in claim 1. To the contrary, the values of the various cells referenced in the formulas of the formula table shown in Kaneko are set based on the values entered into the cells of the spreadsheet, the cells being referenced by formulas. There is no separate interface through which user options are defined, as recited in claim 1.

In fact, Kaneko is not even concerned with defining user options as Boolean variables in a separate user options table data structure using a separate interface from that of the spreadsheet. To the contrary, Kaneko is concerned with displaying the effects of changes to the values in cells of the spreadsheet in both the other cells of the spreadsheet and the formulas used in the spreadsheet. Kaneko is not concerned with providing user options in the manner recited in claim 1.

It is important to realize that the claim, when properly read, requires a separate user option table data structure and interface for defining the user options in the user option table data structure. These are separate from the spreadsheet itself. Thus, user options are defined in this separate user option table data structure using the separate interface and the status of the user options is set via this separate interface. The user options defined in this manner via the user interface may be referenced in the spreadsheet.

To the contrary, in Kaneko, values are specified in cells of the spreadsheet and a formula table is used to display the formulas used in the spreadsheet. Nowhere in Kaneko is there any teaching of any mechanisms like the separate user options table data structure and separate interface recited in claim 1.

Since Kaneko does not teach an interface through which user options are defined as recited in claim 1, Kaneko cannot be found to teach or suggest the feature of determining a value of each of the one or plurality of cells based on a status of the selected user option as either being the first Boolean variable state or the second Boolean variable state, as specified via the user interface. Thus, Kaneko does not teach or suggest the features of claim 1.

Thus, the above treatment of the primary reference sets forth what Kaneko teaches, what Kaneko does not teach, and an explanation as to why what Kaneko teaches is not the same as the features of the claim. The treatment of the primary reference in Applicants' argument in this manner is to address the Examiner's allegation that Kaneko teaches the feature of an interface through which user options may be defined and

through which the state of user options may be set to either a first Boolean variable state or a second Boolean variable state.

Applicants' argument goes on to address the secondary references, Kjaer and Kernighan, in a similar manner:

Kjaer, likewise, does not teach or suggest these features of claim 1. Kjaer is cited as teaching a multidimensional spreadsheet. While Kjaer may teach a multidimensional spreadsheet, nowhere in Kjaer is there any teaching or suggestion regarding a user options table data structure or an interface for defining user options in the user options table data structure, such as recited in claim 1.

Similarly, Kernighan does not teach or suggest these features of claim 1. While Kernighan may teach the ability to set expressions to 1 if true and 0 if false, there is no teaching or suggestion in Kernighan regarding a user options table data structure or an interface for defining user options in the user options table data structure. Merely teaching the ability to set things to 1 if true or 0 if false does not teach or suggest the specific features of claim 1 with regard to the separate user options table data structure and interface.

Here, Applicants are showing that none of the cited references teach or suggest the feature of a user options table data structure or an interface for defining user options in a user options table data structure, as recited in claim 1. Since none of the cited references teach or suggest such a feature, merely combining the references is not going to make such a feature taught or suggested. Applicants are aware that the secondary references were not explicitly cited for teaching such a feature, which in itself is further evidence that they do not teach or suggest such a feature. However, Applicants' argument is directed to showing that the reference the Examiner believes to teach this feature in fact does not teach or even suggest this feature and that the other references do not provide the teaching or suggestion that is deficient in the primary reference, hence the combination cannot teach or suggest this feature.

Applicants' argument goes on to address the alleged combination of references as follows:

Since none of the references teach or suggest the features of claim 1 emphasized above, any alleged combination of the references, even if

such a combination were somehow possible and one were somehow motivated to attempt such a combination, would not result in the features of claim 1 being taught or suggested. To the contrary, an alleged combination of Kaneko, Kjaer, and Kernighan would result in a multidimensional spreadsheet mechanism in which a formula table may be provided such that the effects of changes to values in cells of the multidimensional spreadsheet are highlighted in the display of the spreadsheet and formula table. The addition of Kernighan may teach that values in the cells of the spreadsheet may be set to 1 or 0 in order to represent true or false, but there is no separate interface from the spreadsheet that is used to define user options in a user options table data structure and set their status to either a first Boolean variable state corresponding to a "True" state or a second Boolean variable state corresponding to a "False" state, the user options being able to be referenced in one or more cells of the spreadsheet.

Thus, despite the allegations made by the Examiner that Applicants' arguments only address the references individually, Applicants have in fact addressed each of the references and the alleged combination of references and have shown where the references and alleged combination are deficient with regard to the features of claim 1. Thus, it is improper for the Examiner to disregard Applicants' arguments as being improperly presented against the references individually.

This same argument structure is presented by Applicants with regard to each of the other § 103(a) rejections set forth in the Office Action. Therefore, similar remarks apply to these other arguments as well.

Since the Examiner has not presented any rebuttal to refute Applicants' specific arguments with regard to the teachings and suggestions of the references as well as the result obtained from an alleged combination of the references, but instead erroneously disregards the arguments as being allegedly only directed to the references individually, Applicants respectfully submit that Applicants' arguments set forth in the Response filed October 5, 2006 should be considered persuasive. Thus, Applicants respectfully request that the Examiner reconsider Applicants' arguments presented in the October 5, 2006 Response.

For the reasons set forth in the October 5, 2006 Response, and the reasons set forth above, Applicants respectfully submit that claims 1-5, 7-9, and 12-23 are not obviated by the alleged combinations of references. Accordingly, Applicants respectfully

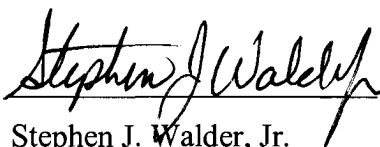
request withdrawal of the rejection of claims 1-5, 7-9, and 12-23 under 35 U.S.C. § 103(a).

VI. Conclusion

It is respectfully urged that the subject application is now in condition for allowance. The Examiner is invited to call the undersigned at the below-listed telephone number if in the opinion of the Examiner such a telephone conference would expedite or aid the prosecution and examination of this application.

Respectfully submitted,

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